DOCUMENT RESUME

ED 435 930 CG 029 631

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| AUTHOR | Johnston, Lloyd D. |
| TITLE | Reasons for Use, Abstention, and Quitting Illicit Drug Use by American Adolescents: A Report Commissioned by the Drugs-Violence Task Force of the National Sentencing Commission. Monitoring the Future Occasional Paper No. 44. |
| INSTITUTION | Michigan Univ., Ann Arbor. Inst. for Social Research. |
| PUB DATE | 1998-00-00 |
| NOTE | 47p.; Paper is an abbreviated text of a presentation to the Drugs-Violence Task Force of the National Sentencing Commission (Spring 1995). |
| PUB TYPE | Reports - Research (143) |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | *Adolescents; Crime; *Drug Use; *Grade 10; *Grade 12; *Grade 8; Secondary Education; Young Adults |
| IDENTIFIERS | Monitoring the Future |

ABSTRACT

The data for this report were obtained from the Monitoring the Future study. Surveys from eighth, tenth, and twelfth grade respondents were used to examine adolescents' reasons for use, abstention, and quitting illicit drug use. Many reasons were found for drug use. Abstainers provided more reasons for their abstention than quitters gave for their quitting. The stages of drug involvement are explained and the connections between drug use and crime are discussed. A theory of drug epidemics is introduced. This theory proposes the following phases: the growth phase (awareness, access, motivation to use, reassurance about the safety of the drug, willingness to violate laws and predominant social norms); the maintenance phase; the growth phase; and the relapse phase. This report concludes by offering that society's ability to control the relapse and to reduce the standing addict population will depend greatly on our understanding of the dynamic nature of the process, of the limitations of traditional supply reduction strategies, and on the importance of demand and demand reduction to the dynamics of such epidemics. Beliefs, attitudes, and norms regarding drugs are critical deterrents to use in the general population. For addicts, more substantial changes are clearly needed to change behavior, primarily in the form of effective treatment and rehabilitation. (Contains 2 tables, 8 figures, and 12 references.) (MKA)

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paper 44

# REASONS FOR USE, ABSTENTION, AND QUITTING ILLICIT DRUG USE BY AMERICAN ADOLESCENTS:

A Report Commissioned by the Drugs-Violence Task Force of the National Sentencing Commission

Lloyd D. Johnston

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**Monitoring the Future: A Continuing Study of the Lifestyles and Values of Youth**

As its title suggests, this study is intended to assess the changing lifestyles, values, and preferences of American youth on a continuing basis. Each year since 1975 about 17,000 seniors have participated in the annual survey, which is conducted in some 130 high schools nationwide. In addition, subsamples of seniors from previously participating classes receive follow-up questionnaires by mail each year.

This Occasional Paper Series is intended to disseminate a variety of products from the study, including pre-publication (and somewhat more detailed) versions of journal articles, other substantive articles, and methodological papers.

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A Report Commissioned by the Drugs-Violence Task Force
of the National Sentencing Commission

*Monitoring the Future Occasional Paper 44*

Lloyd D. Johnston, Ph.D.
Institute for Social Research
The University of Michigan
1998

## TABLE OF CONTENTS


**LIST OF TABLES** ..... iii

**LIST OF FIGURES** ..... iii

**INTRODUCTION** ..... 1

**METHODS** ..... 1

**STAGES OF DRUG INVOLVEMENT** ..... 2

**THE CONNECTIONS BETWEEN DRUGS AND CRIME** ..... 4

**REASONS FOR DRUG USE, ABSTENTION, AND QUITTING** ..... 6

- Self-Reported Reasons for Use ..... 6
- Self-Reported Reasons for Abstention ..... 8

**A THEORY OF DRUG EPIDEMICS** ..... 14

- The Growth Phase ..... 16
  - Awareness ..... 16
  - Access ..... 16
  - Motivation to use ..... 17
  - Reassurance about the safety of a drug ..... 20
  - Willingness to violate laws and predominant social norms ..... 20
- The Maintenance Phase ..... 21
- The Decline Phase ..... 21
- The Relapse Phase ..... 23

**SUMMARY AND CONCLUSIONS** ..... 25

**REFERENCES** ..... 26

## LIST OF TABLES


Table 1. Long-Term Trends in Annual Prevalence of Various Types of Drugs for Twelfth Graders .....

Table 2. Motivations for Using Drugs .....


## LIST OF FIGURES


Figure 1. Covariance Over Time in Interpersonal Aggression, Property Crime, and Drug Use at the Aggregate Level, Twelfth Graders .....

Figure 2. Marijuana: Self-Reported Reasons for Use, Twelfth Graders 91-94 .....

Figure 3. Cocaine: Self-Reported Reassons for Use, Twelfth Graders 91-94 .....

Figure 4. Marijuana: Reasons for Abstentin and Quitting .....

Figure 5. Cocaine: Reasons for Abstention and Quitting .....

Figure 6. Crack: Reasons for Abstention and Quitting .....

Figure 7. Marijuana: Trends in Perceived Availability, Perceived Risk of Regular Use, and Prevalence of Use in Past Thirty Days, Twelfth Graders .....

Figure 8. Cocaine: Trends in Perceived Availability, Perceived Risk of Regular Use, and Prevalence of Use in Past Thirty Days, Twelfth Graders .....

## INTRODUCTION

This paper is an abbreviated text of a lengthy invited presentation to the Drugs-Violence Task Force of the National Sentencing Commission in the spring of 1995. The author was asked to address the topic of why some people use drugs while others avoid using them, and that will be the primary focus of this Occasional Paper. However, that issue is only one in the broader array the Task Force considered, so the first part of this paper addresses the interface between drugs and crime, which is at the heart of the Task Force's mission. The complex issue of causes follows that.

## METHODS

The data for this report were obtained from the Monitoring the Future study (Johnston, O'Malley, & Bachman, 1995). The study is subtitled "A Continuing Study of the Lifestyles and Values of Youth," because of its broad content; we cover a great many issues besides drugs, including crime and victimization. We survey young people as they enter adulthood, that is, high school seniors at the end of their secondary education. There are now four additional populations in the study, two of which have been added fairly recently. The population on which we have the longest time series, and on which I focus in this report, is the 12th graders, on whom we now have twenty years of survey data. Each survey is representative of all 12th graders for that year in the coterminous United States in public and private high schools. The samples of seniors are large, ranging around 16,000 located in approximately 135 high schools per year. From the sample in each graduating class, we take a smaller group of 2,400 and follow them over subsequent years. In this way, we eventually develop a very good national sample of college students, since virtually all college students come from high school. Although the college student sample is small (about 1,500), I think it is quite accurate. We also have a sizeable sample of young adult high school graduates. For trend purposes, the "young adult" segment reported on here is limited to ages 19 to 28, although some of the high school students we have followed are now in their late 30s. There are about 7,000 respondents per year in the young adult sample of 19- to 28-year-olds. All of the follow-up surveys are conducted by mail, with modest payment to respondents. These are highly cost-efficient because of the low-cost method of data collection and high response rates. In the first year of follow-up in the early cohorts, roughly 80 to 85 percent responded; at the ten year follow-up, the response rate was about 70 percent.

Because initiation into drugs frequently occurs at younger ages, and because many intervention programs are targeted at younger ages, eighth graders and tenth graders were added to the annual in-school surveys in 1991. Each grade is an independent sample and the methodology parallels the methodology used in the 12th grade surveys. In the 8th-, 10th-, and 12th grades, self-administered questionnaires are given to classrooms of students by University of Michigan personnel. Similar self-administered questionnaires are mailed to the follow-up samples, with a $10.00 (and earlier $5.00) payment. All questionnaires take 30 to 40 minutes to complete.

## STAGES OF DRUG INVOLVEMENT

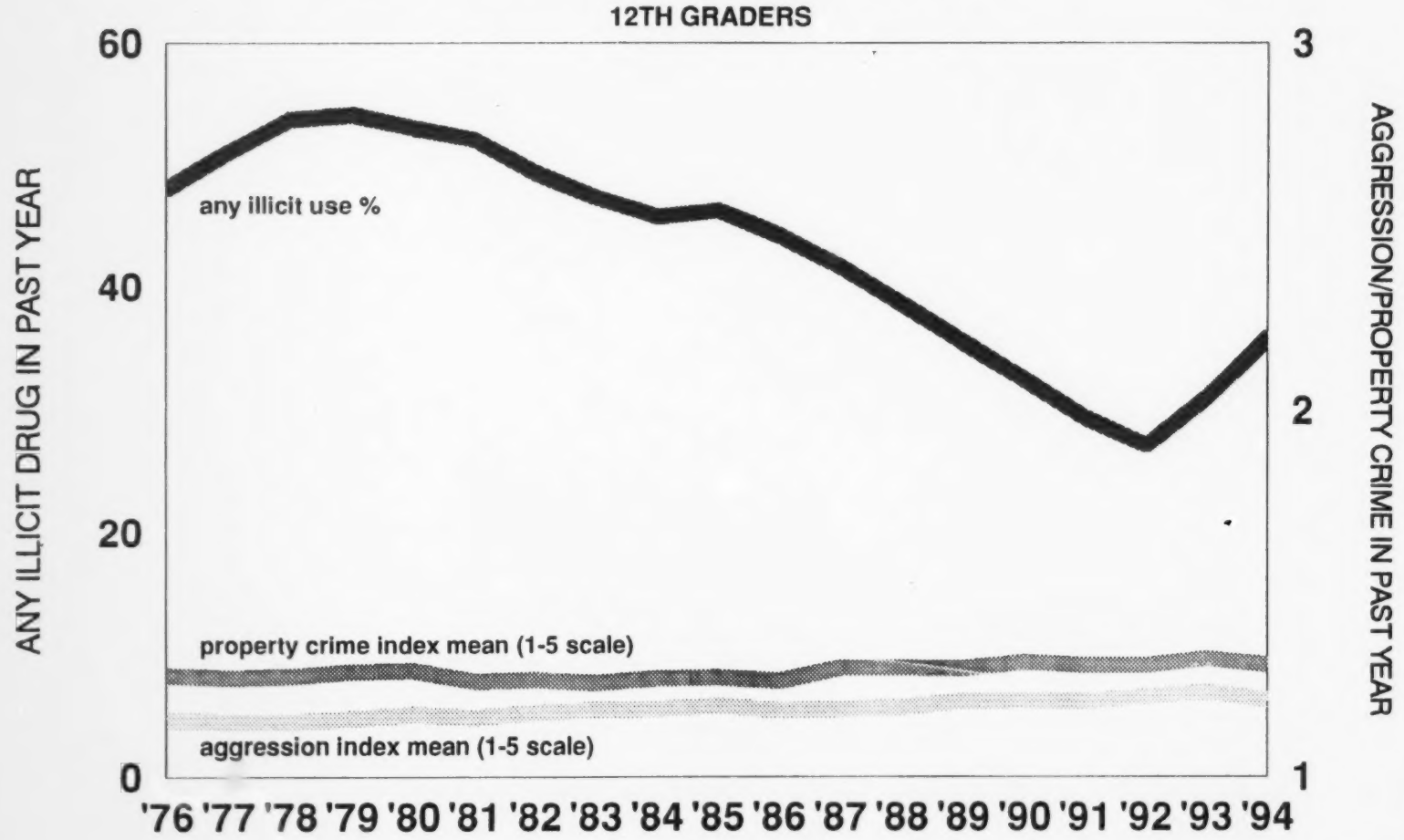
In developing an understanding of drug use, and the reasons for it, it is useful to know something about the sequential nature of drug involvement. First, involvement tends to follow a typical sequence (Kandel, 1975; Yamaguchi & Kandel, 1984a, 1984b). People do not just start smoking marijuana or using heroin--that is very rare. The sequencing tends to follow a pattern, which is not invariant, but 80 to 90 percent of all the youngsters we look at who use drugs fit this kind of pattern. They start either with alcohol or tobacco and usually go on to the other one. Widely recognized as a next step in drug-use progression is marijuana use, but less widely recognized as an early step is the use of inhalants, which are used mostly among younger adolescents. In fact, until this past year, inhalants were the most widely used illicit drug among eighth graders--even higher than marijuana, however because marijuana use has risen sharply, it has overtaken inhalants in prevalence of use. For various reasons the use of inhalants has not received much attention. Inhalant use involves legal, inexpensive, easily available drugs (household products in the main) affording all youngsters ready access at virtually no cost. They believe inhalant use is safe, although it is not at all. Such use is probably an important early indicator of youngsters who are going to get into trouble and I think we need to do more to address this indicator and to educate youngsters about the inherent dangers of such use.

After these important initial steps into illicit drug use, youngsters may next try any of a number of other illicit drugs including LSD, cocaine, amphetamines (for many years one of the most widely used classes of drugs), and/or any of the controlled psychotherapeutic drugs. Finally, after that intermediate step, a smaller number begin to use crack and/or heroin. Most of the young people who use either of these drugs already have used one or more drugs in the intermediate group. Fortunately, not all youngsters complete this sequence of involvement. Most stop at alcohol or tobacco use and many stop at marijuana use.

There is gradual, and to some degree age-graded, involvement with drugs. The pattern of progressive involvement is correlated with youngsters' perceptions of how dangerous the drugs are. (See Johnston et al., 1995.) Also related to the progression, I believe, is the perceived deviance of the behavior. It is not very deviant to use alcohol and tobacco in a society which widely extols their virtues, although it is somewhat deviant for a youngster to do that. It is more deviant to cross the line into illegal drug use and even more so to use so-called harder drugs. And finally, heroin has always been seen as the most deviant of all.

For any particular drug, there also are different stages of involvement. These stages move through experimentation, occasional use, regular use, and on to addiction for some drugs. And of course, the motives for the different degrees of involvement are somewhat different (Yamaguchi & Kandel, 1984b). In this paper, I will focus on the earlier stages in the involvement cycle, because in our studies few respondents are addicts. It is clear that the psychopharmacological properties of drugs become more and more important to the reinforcement pattern as an individual becomes more involved. Neurological change may occur, and a drug can become necessary in order to be normal neurologically. It should be noted that these different stages are quite different in their degree of relationship to crime, as will be discussed next.

## Figure 1
## COVARIANCE OVER TIME IN INTERPERSONAL AGGRESSION, PROPERTY CRIME, AND DRUG USE AT THE AGGREGATE LEVEL



## THE CONNECTIONS BETWEEN DRUGS AND CRIME

Several different kinds of connections between drugs and crime can be distinguished. The first is that people do criminal things while under the influence of a drug. They may engage in assaultive or other aggressive acts. That is certainly true for alcohol: By far the most aggression which occurs under the influence of drugs, occurs with alcohol. It is relatively less true for most of the illicit drugs. Those illicit drugs that may lead to such behavior are the stimulants--cocaine, crack, amphetamines--where heavy use can cause a paranoid syndrome to develop and with that, aggressive acts resulting from the pharmacological properties of the drug. But most drugs, and certainly marijuana, do not seem to lead to aggressive behavior as a result of their pharmacological properties.

And, of course, in the advanced stages of involvement, violent acts may be associated with supporting the habit--the second connection with crime. When an addict's desire for the drug is very high, he often will do whatever is necessary to get it: stealing from his family, stealing from friends or employers, shoplifting, etc. But as these property crimes continue, aggression may be used in muggings to get a purse, robberies, and so forth. So addiction represents an important factor in criminal behavior, although it relates primarily to property crime.

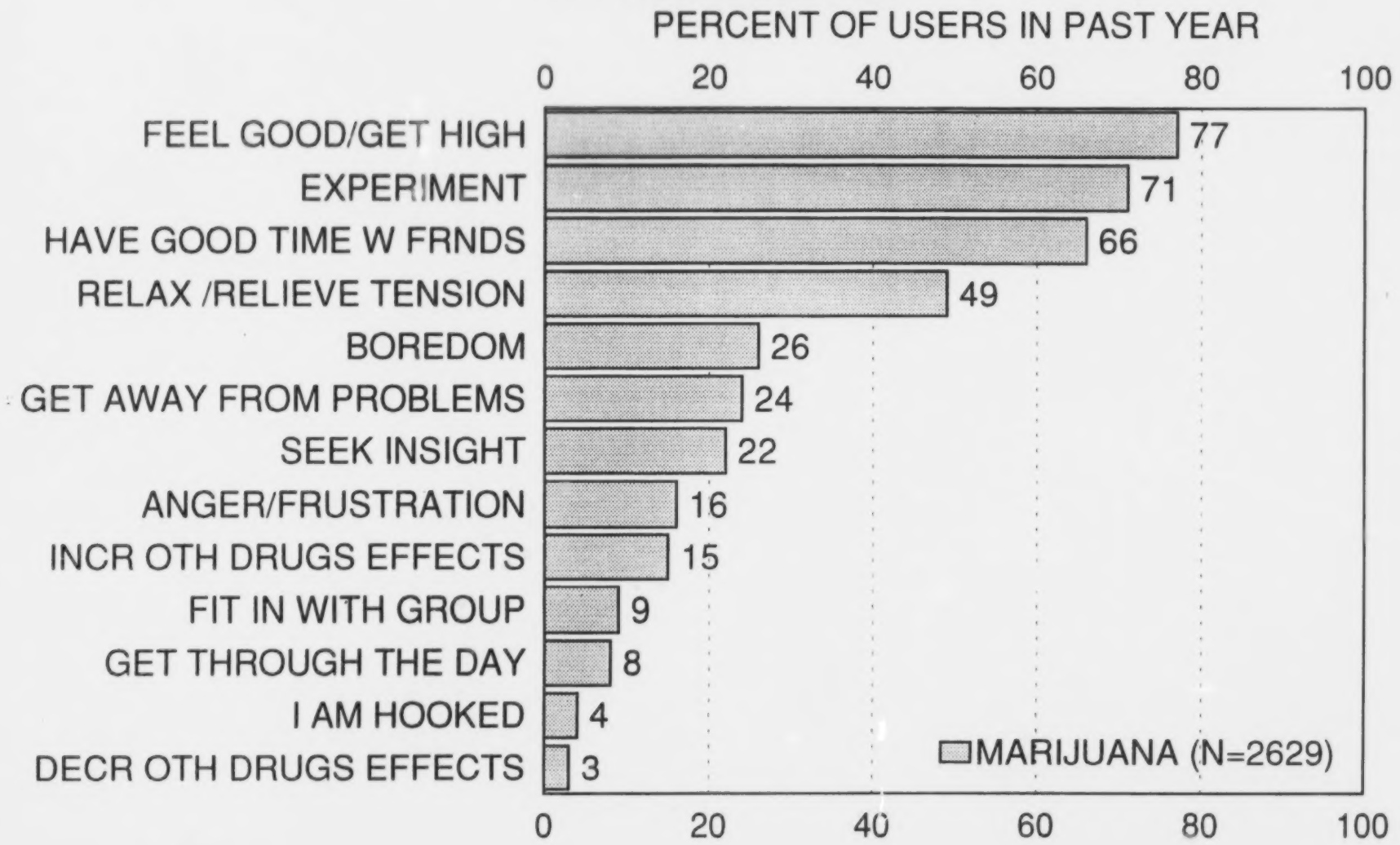
Crime associated with dealing a drug is a third, very important part of the drugs-crime connection. There has always been some violence of this sort, but the advent of cocaine and crack seemed to shift the amount and brutality of the violence to a higher level. Fourth, a new problem has emerged, which now is becoming quite serious. It is derivative from our policies about drug users and drug dealers. The use of minimum mandatory sentencing has over-crowded prisons with non-violent offenders and, as a result, is forcing other types of offenders back onto the street earlier than they would have been otherwise. This may well result in an increase in violent crime.

Finally, it should be noted that, while non-drug-related delinquent or criminal acts tend to be highly correlated with drug use, much of this association is due to a more general common determinant which might be called "deviance proneness." We have shown that most of the variance in drug use and other deviant behaviors can be explained by this common factor (Osgood, Johnston, O'Malley, & Bachman, 1988) although some variance in drug-using behaviors remains to be explained by determinants specific to them. In fact, in an earlier chapter we raised the question of whether any of the levels of drug involvement, short of addiction, actually contributed to a person's involvement in either property crime or interpersonal aggression (Johnston, O'Malley, & Eveland, 1978). Based on a panel study of a national sample of young men from roughly ages 16 to 24, we found little evidence that it did, although delinquency levels were *predictive* of adolescent drug use. Whether these earlier findings would generalize to today's young people is another question, however.

Figure 2

**MARIJUANA: SELF-REPORTED REASONS FOR USE**

**12TH GRADERS 91-94**



The Monitoring the Future Study provides quite another type of data to examine the relationship between drugs and crime. Using the data from seniors over the period 1976 to 1994, we can show that, while the proportion involved with illicit drugs varied widely over time–first increasing and then decreasing substantially–the indices of property crime and interpersonal aggression, measured on these same samples of seniors, varied rather little (see Figure 1). In other words, there was no correlation between their trends. If the trend lines for individual drugs were charted (see Johnston et al., 1995), they also would show no cross-time correlation with the levels of delinquency, again raising the question whether drug use short of addiction really contributes in a causal way to other illegal behavior (with the exception of drug dealing, which was not covered in the delinquency indices).

## REASONS FOR DRUG USE, ABSTENTION, AND QUITTING

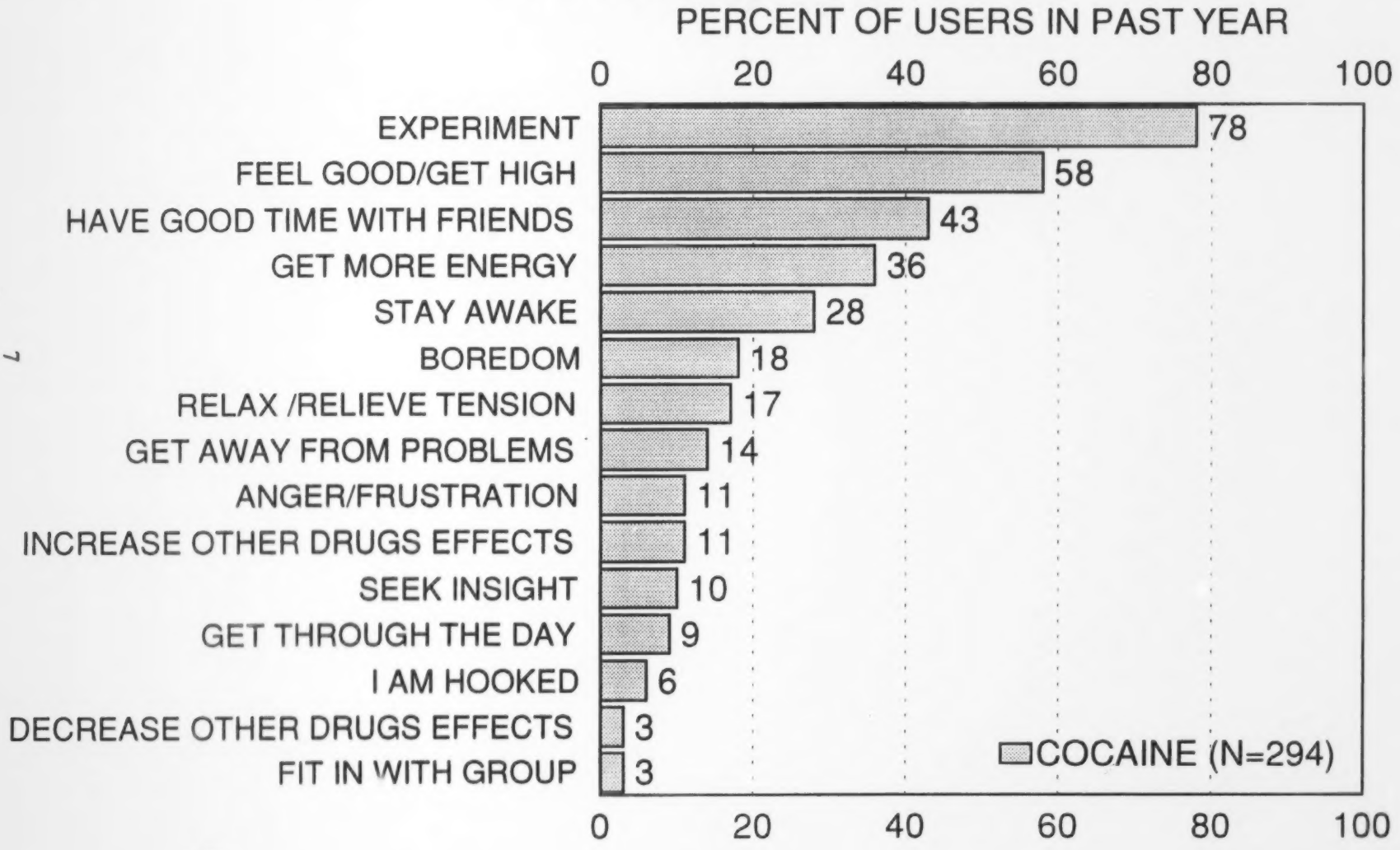
In Freudian psychology, the term "overdetermination" means that a behavior has multiple causes. It is very clear that this applies in the case of drugs. There are different ways to look at those causes. One can simply ask users, "Why is it you use this drug?" We have done that for many years, and some of the results from those surveys will be presented below. Certainly there are some global determinants of drug use (like willingness to be deviant), but there are also many specific determinants for the individual drugs. I think one of the things we can do as a society is change the proportion of people who are willing to consider using any of the illicit drugs. A second level of explanation and analysis deals with the question of why whole epidemics come and go, in terms of proportion who are willing to use any drugs, and in terms of the proportion willing to use any particular drug. While use of one drug is going up, use of another can be going down–they behave individually. Like fads, certain drugs fade in and out of popularity for a host of reasons. I think we have a good idea of what some of those reasons are, and they will be discussed here. I will begin, however, with the motivations young people themselves report for their use of particular drugs.

### Self-Reported Reasons for Use

In an earlier article on self-reported reasons for use (Johnston & O'Malley, 1986), we came to a number of general conclusions about the reasons high school seniors offered for their use of the various illicit drugs. First, those reasons differ considerably by drug. They often relate, as you would expect, to the known pharmacological effects of the drugs. That is, one uses an "upper" for different reasons than a "downer." Second, the profile of reasons differs, depending on how involved the youngster is in the use of a particular drug. Youngsters who are in the beginning stages of drug use, will say "to experiment, to see what it is like." After that comes "to have a good time with my friends"–a social reason, as well as "to get high." Those in the heavier user groups increasingly mention psychological coping as the underlying reasons for their use– "to get through the day," "to relieve boredom," "to deal with anger and frustration," etc. (Of course, there are only certain types of reasons that people are capable of reporting: There may be others that they are not aware of or do not want to report. Those will be discussed in a later section.)

**Figure 3**

**COCAINE: SELF-REPORTED REASONS FOR USE**
**12TH GRADERS 91-94**



For the present paper I have used recent survey data to conduct updated analyses of self-reported reasons for use. Again, it is gathered from high school seniors using a closed-ended answer format in which the respondent is asked to check "What have been the most important reasons for your using marijuana or hashish? (Check all that apply.)" Figure 2 provides the answers given by respondents, drawn from the classes of 1991 through 1994 combined, who said that they had used marijuana at least once in the prior 12 months. The 15 reasons have been listed in rank order.

First, note that respondents mention many reasons–thus they add up to far more than 100 percent. "To feel good and get high" has a very high mention for marijuana use, and "to have a good time with my friends" is mentioned by two-thirds of respondents who had used in the past year. For marijuana, much of the motivation is celebratory, social behavior. Many youngsters often use in a social setting, such as teenage parties. Some, in fact, half, say they use it to "relax" or "relieve tension." Many of the psychological reasons receive relatively low mentions from marijuana users overall; however, daily users of marijuana mention psychological reasons more often: "to get away from my problems," "seek insight," "deal with anger or frustration." As can be seen from its low ranking, "to fit in with a group" is not a widely claimed reason (though this may come more from its low social desirability) and "because I am hooked" is mentioned by only a few percent of recent users.

Figure 3 presents comparable data for cocaine. "To experiment" gets an even higher rank for cocaine than it did for marijuana, possibly because a higher proportion of the cocaine users are at an early stage of involvement, since cocaine generally has a later age of onset than marijuana (Johnston et al., 1995). Cocaine is the only drug in our study for which active use grows with age, into the 20s. Fewer respondents say "to have a good time with my friends" because cocaine is less of a party drug and more a drug one uses to "feel good or get high"–the second ranked reason after experimentation. "More energy" and "staying awake" are mentioned by fair proportions, and, of course, these reasons stem from the specific psychopharmacological properties of cocaine. Finally, psychological coping motives tend to trail off in the mentions, again, in part, because relatively few respondents at this age have progressed into heavier use.

**Self-reported Reasons for Abstention**

It is also possible to ask respondents why they do not use, and we have done that. The respondent is instructed, "Here are some reasons people give for not using marijuana, or for stopping use. Please tell us which reasons are true for you. (Mark all that apply.)" Only respondents saying that they have not used in the past twelve months are asked these questions, and of them, respondents who say they "probably will" or "definitely will" use in the next 12 months are excluded. The results for marijuana are presented in Figure 4. Two kinds of non-users are distinguished: the "abstainers" (i.e., those who have never used) and the "quitters" (defined as past users who have not used in the prior 12 months). Again, data from 1991 through 1994 have been combined to increase the sample size, because this question appears on only one of our six questionnaire forms. Clearly, abstainers provide more reasons for their abstention than quitters give for their quitting. However, the rank order given to the various reasons tends to be fairly similar for both abstainers and quitters, though for almost every reason the abstainers are

less likely to cite the reason. Notice that the two most commonly mentioned reasons for abstainers are concerns that they might damage themselves psychologically and/or physically. These beliefs about the risk of harm have proven to be very important determinants of drug-using behaviors–a point returned to below.

Interestingly, in light of the fact that one of the leading reasons given for use is wanting to get high, one of the leading reasons for *non-use* for both quitters and abstainers is the opposite–they do *not* want to get high. "Afraid of becoming addicted" is mentioned by considerably more abstainers than quitters, and the disparity is even greater for "it's against my beliefs," which is important to the majority of abstainers but to less than a quarter of the quitters. Quitters are less likely to cite as reasons that they "don't like users" or that their "friends don't use." However, quitters are much *more* likely to characterize marijuana smoking as "not enjoyable," which was mentioned by about 40 percent of the quitters but by less than 20 percent of the abstainers. This makes sense considering that true abstainers have never had first-hand experience to determine whether it was enjoyable. Also note that concerns about "loss of ambition" were mentioned by 30 to 40 percent of each group. Among *daily* marijuana users, we have found that loss of energy has been mentioned as a consequence of use by some 40 percent (Johnston, 1981). Many young people seem to be aware of this possibility.

"Fear of arrest" is mentioned by less than half of both the abstainers (48 percent) and the quitters (about 40 percent). Nevertheless, it is a concern for some. Lack of availability on the other hand, was mentioned by less than 10 percent of either group, substantiating our claim made elsewhere (Johnston et al., 1995) that marijuana is almost universally available to this age group . Concerns about cost ("too expensive") were salient for only about a quarter of each group. These findings suggest that the nation's primary long-term strategy of supply control has not worked very well.

Figure 5 presents a set of data for powder cocaine similar to the one we have just been examining for marijuana. The answer format is slightly different for powder cocaine; instead of being asked to check *all* the reasons they felt were important for their non-use, respondents were asked to choose the degree of importance of each reason on a three-point scale: "not at all important," "somewhat important," and "very important." The proportion marking "very important" is displayed in Figure 5.

Again, the cocaine abstainers give more reasons for their non-use, but not dramatically more, than the quitters. In contrast to marijuana, the "fear of addiction" ranks at the top–almost all respondents mention it, and that is true of quitters as well as abstainers. Concerns about physical and psychological harms rank very high for cocaine, as well as for marijuana. This reflects a big change. During the late 1970s and early 1980s, when cocaine use was burgeoning in United States, it was seen as a "safe" drug because experts publicly stated that it was not addictive or deadly. Many people believed them: Clearly not anymore. It took time for experience to cumulate and for people to see the outcomes. That it "might lead to stronger drugs" is also a concern of the great majority. "Fear of arrest" is mentioned by many more respondents as a reason for not using cocaine than was true for marijuana.

**Figure 4**

**MARIJUANA: REASONS FOR ABSTENTION AND QUITTING**

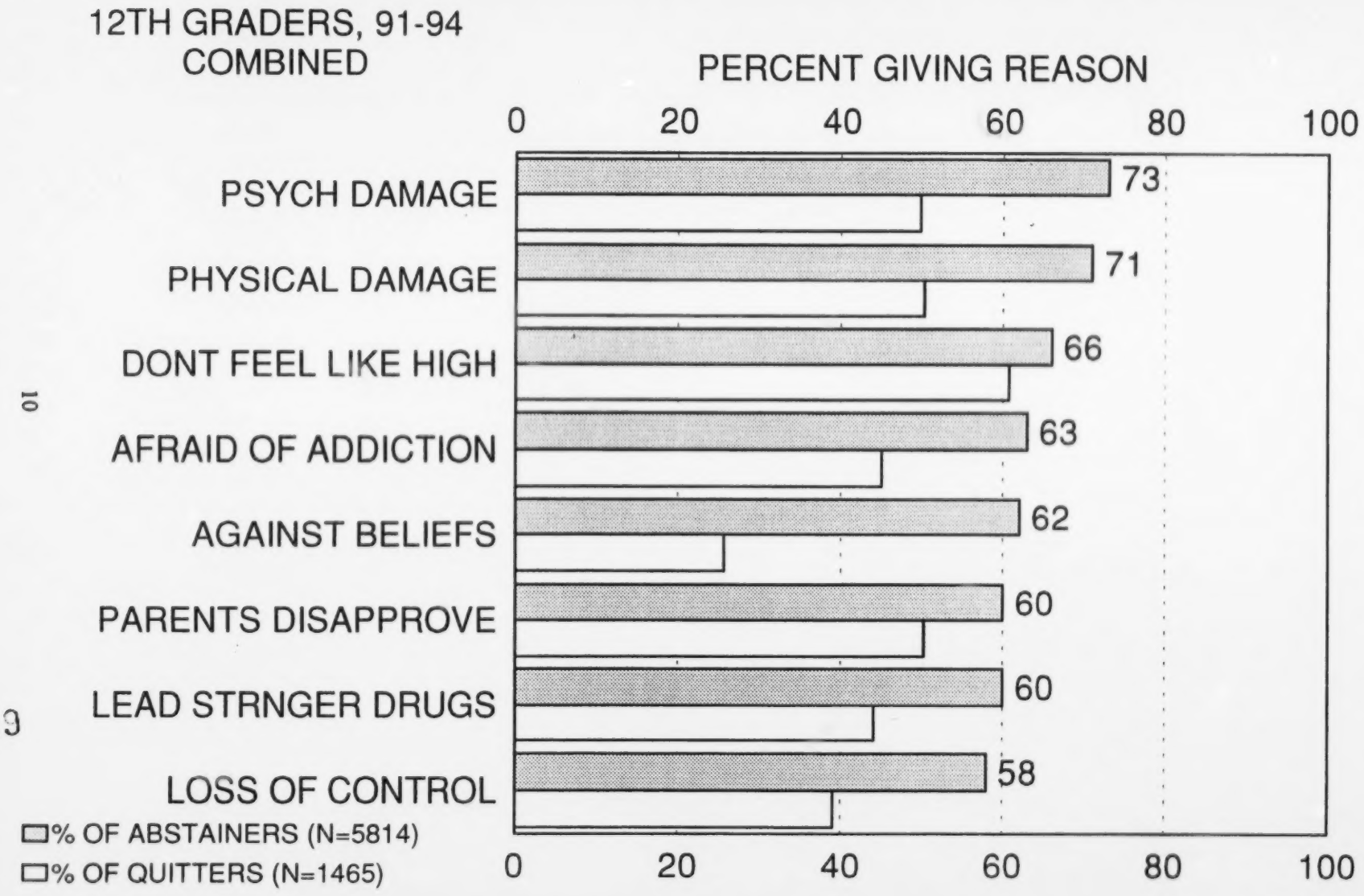


Figure 4 (Cont'd)

## MARIJUANA: REASONS FOR ABSTENTION AND QUITTING

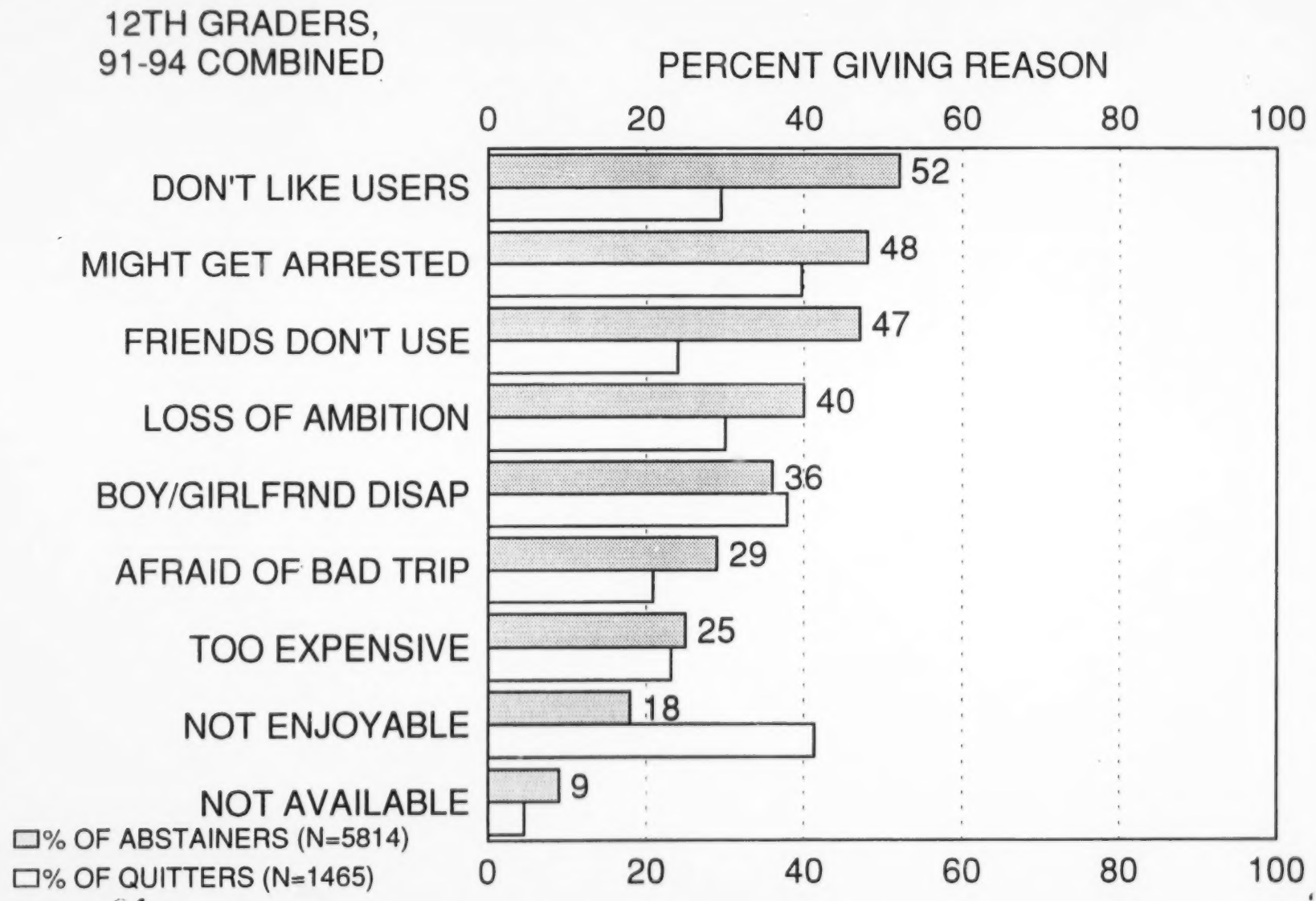


**Figure 5**

## COCAINE: REASONS FOR ABSTENTION AND QUITTING

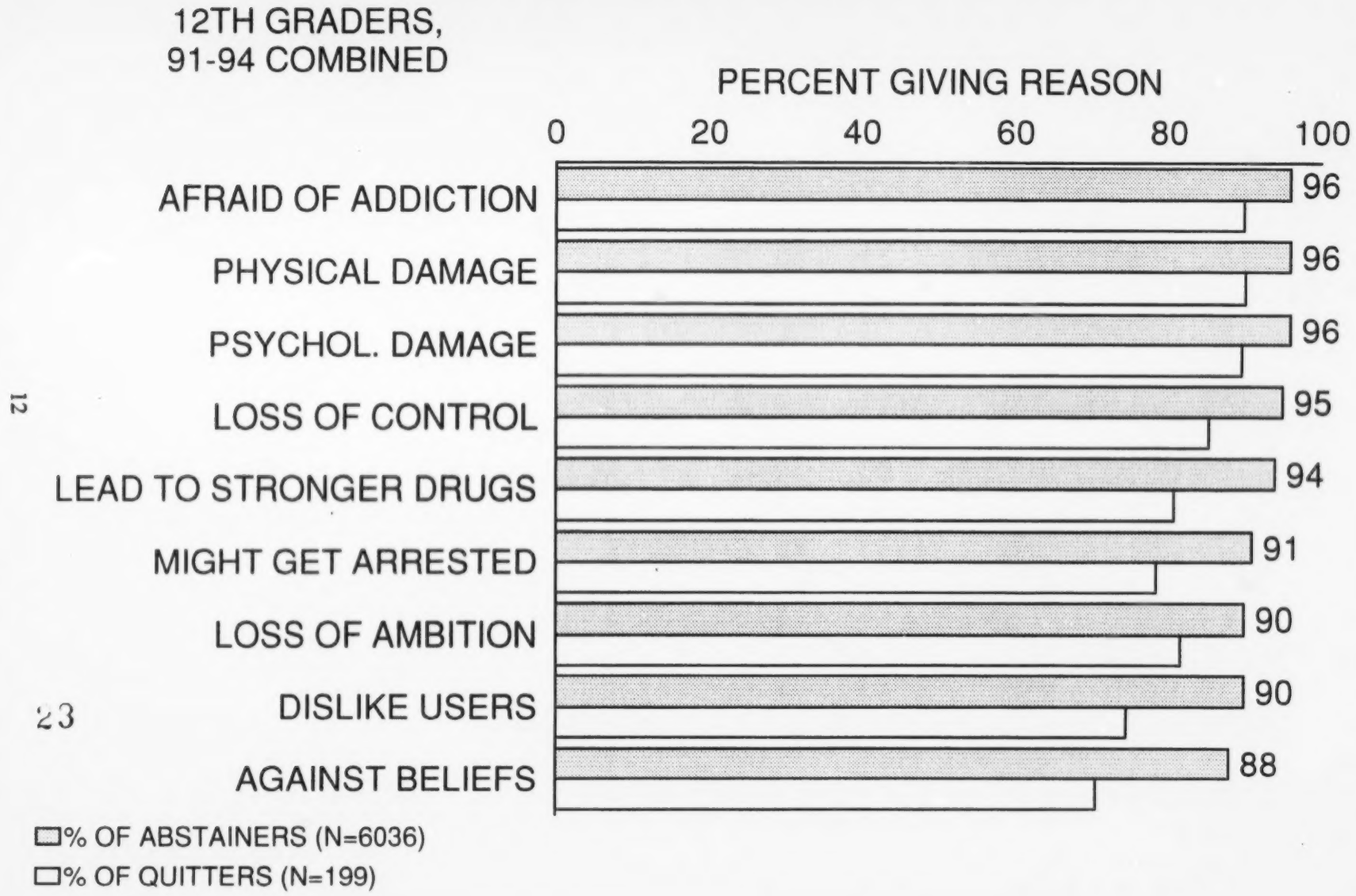
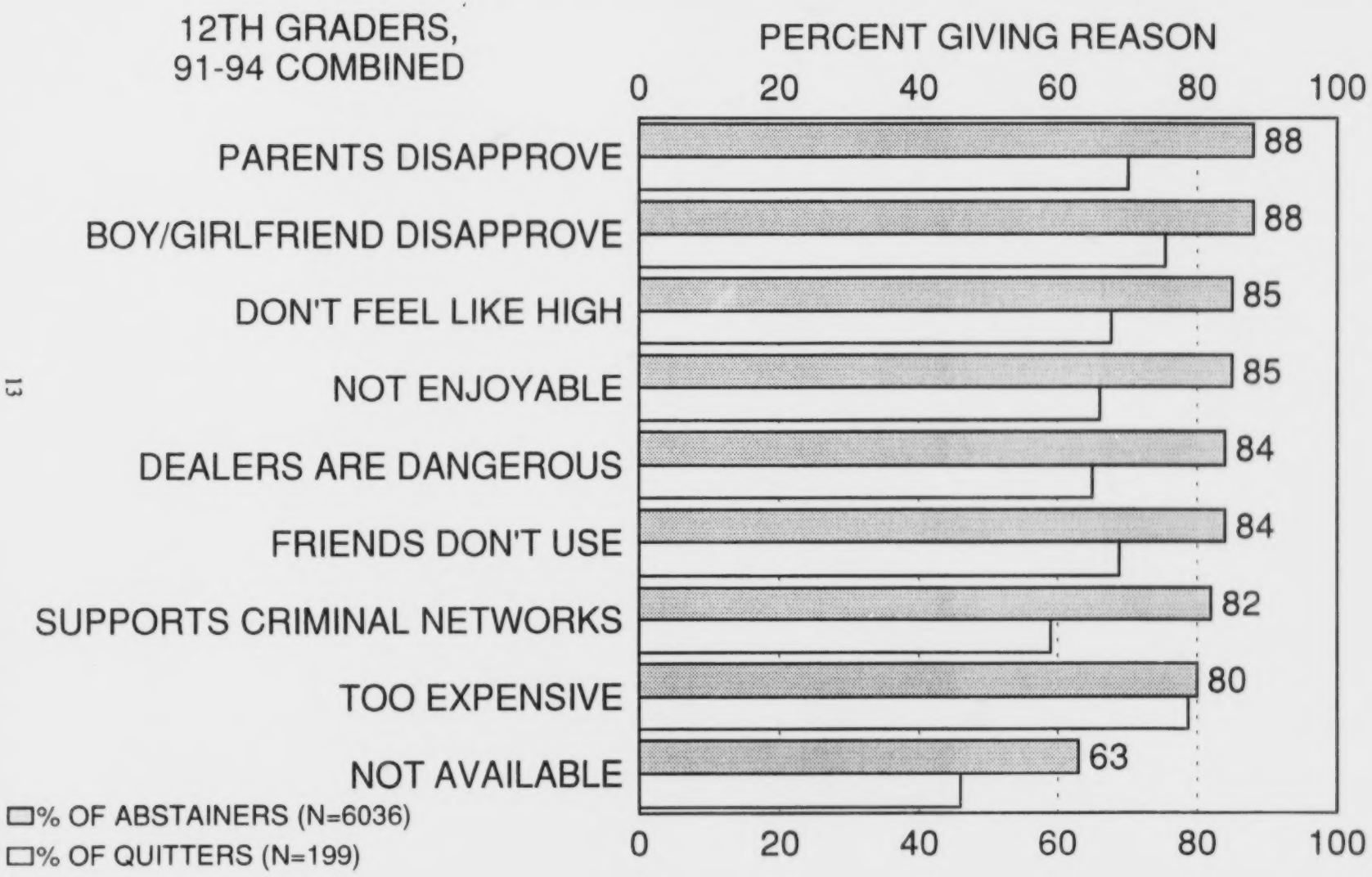


**Figure 5 (Cont'd)**

## COCAINE: REASONS FOR ABSTENTION AND QUITTING



One of the striking things about the results in Figure 5 is how many of these reasons are mentioned as very important by the majority of both groups–usually the great majority. In fact, the only exception is the reason "not available"; while mentioned by over 60 percent of the abstainers, "not available" was mentioned by less than 50 percent of the quitters. "Too expensive" is mentioned by roughly 80 percent of both groups for powder cocaine, much higher than for marijuana. This multitude of highly endorsed reasons for not using is consistent with the fact that in recent years only a few percent of this age group have been using cocaine. In 1994, the annual prevalence rate among high school seniors was 3.6 percent, compared with 31 percent for marijuana (see Table 1).

Figure 6 presents comparable data from both quitters and abstainers of crack cocaine use. (Incidentally, the question on crack use immediately preceded the question on powder cocaine use in the same questionnaire form. The marijuana question on reasons for not using, which has been in the study much longer, is on a different form.) It should be noted that the data on crack quitters are based on only 105 cases. In general the findings are quite similar to those for powder cocaine except that the disparities between the answers from abstainers and those from quitters is a little larger for crack.

## A THEORY OF DRUG EPIDEMICS

Aside from the question of why particular people use particular drugs in any given historical period, there is the question of why there are such wide shifts over time in the proportions using *any* illicit drug (as illustrated in Figure 1) or in the proportions using *specific* illicit drugs (as illustrated in Tables 1 and 2). In discussing the reasons given by today's high school students for using or for not using, I already have alluded to the fact that some of these motivations, and underlying beliefs, have changed substantially over time. While individual risk factors and protective factors may be very useful for differentiating who is more or less likely to use drugs at any *given* time, they have not proven particularly helpful in explaining large swings in the proportions of the population using drugs (see Bachman, Johnston, & O'Malley, 1990; Bachman, Johnston, O'Malley, & Humphrey, 1990).

Based on our observations of the American epidemic of illicit drug use, we have developed an empirically-derived theory of drug epidemics (Johnston, 1991). It distinguishes phases in an epidemic of widespread illicit use of drugs and posits factors of importance to the development of each phase. These factors are certainly among the reasons why people do or do not use drugs.

The initiation or growth phase of a drug use epidemic is when the proportion of the population involved in illicit drug use grows from near zero percent to some significant fraction (for example, during the late 1960s through the 1970s). In this epidemic it climbed to two-thirds of American young people by the end of high school (Johnston et al., 1995). The next phase is a maintenance phase: Some of the forces that gave rise to initiation or growth recede (the Vietnam War is a classic example of such a factor) but the epidemic continues. For example, cocaine was as prevalent in 1986 as it was in 1980. Then there is a decline phase: A substantial drop in use

# Table 1
## Long-Term Trends in Annual Prevalence of Various Types of Drugs for Twelfth Graders

| | Percent who used in last twelve months | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class of 1975 | Class of 1976 | Class of 1977 | Class of 1978 | Class of 1979 | Class of 1980 | Class of 1981 | Class of 1982 | Class of 1983 | Class of 1984 | Class of 1985 | Class of 1986 | Class of 1987 | Class of 1988 | Class of 1989 | Class of 1990 | Class of 1991 | Class of 1992 | Class of 1993 | Class of 1994 | '93–'94 change |
| *Approx. N =* | *9400* | *15400* | *17100* | *17800* | *15500* | *15900* | *17500* | *17700* | *16300* | *15900* | *16000* | *15200* | *16300* | *16300* | *16700* | *15200* | *15000* | *15800* | *16300* | *15400* | |
| *Any Illicit Drug* | 45.0 | 48.1 | 51.1 | 53.8 | 54.2 | 53.1 | 52.1 | 49.4 | 47.4 | 45.8 | 46.3 | 44.3 | 41.7 | 38.5 | 35.4 | 32.5 | 29.4 | 27.1 | 31.0 | 35.8 | +4.8sss |
| *Any Illicit Drug Other Than Marijuana* | 26.2 | 25.4 | 26.0 | 27.1 | 28.2 | 30.4 | 34.0 | 30.1 | 28.4 | 28.0 | 27.4 | 25.9 | 24.1 | 21.1 | 20.0 | 17.9 | 16.2 | 14.9 | 17.1 | 18.0 | +0.9 |
| Marijuana/Hashish | 40.0 | 44.5 | 47.6 | 50.2 | 50.8 | 48.8 | 46.1 | 44.3 | 42.3 | 40.0 | 40.6 | 38.8 | 36.3 | 33.1 | 29.6 | 27.0 | 23.9 | 21.9 | 26.0 | 30.7 | +4.7sss |
| Inhalants | — | 3.0 | 3.7 | 4.1 | 5.4 | 4.6 | 4.1 | 4.5 | 4.3 | 5.1 | 5.7 | 6.1 | 6.9 | 6.5 | 5.9 | 6.9 | 6.6 | 6.2 | 7.0 | 7.7 | +0.7 |
| *Inhalants, Adjusted* | — | — | — | — | 8.9 | 7.9 | 6.1 | 6.6 | 6.2 | 7.2 | 7.5 | 8.9 | 8.1 | 7.1 | 6.9 | 7.5 | 6.9 | 6.4 | 7.4 | 8.2 | +0.8 |
| Amyl/Butyl Nitrites | — | — | — | — | 6.5 | 5.7 | 3.7 | 3.6 | 3.6 | 4.0 | 4.0 | 4.7 | 2.6 | 1.7 | 1.7 | 1.4 | 0.9 | 0.5 | 0.9 | 1.1 | +0.2 |
| Hallucinogens | 11.2 | 9.4 | 8.8 | 9.6 | 9.9 | 9.3 | 9.0 | 8.1 | 7.3 | 6.5 | 6.3 | 6.0 | 6.4 | 5.5 | 5.6 | 5.9 | 5.8 | 5.9 | 7.4 | 7.6 | +0.2 |
| *Hallucinogens, Adjusted* | — | — | — | — | 11.8 | 10.4 | 10.1 | 9.0 | 8.3 | 7.3 | 7.6 | 7.6 | 6.7 | 5.8 | 6.2 | 6.0 | 6.1 | 6.2 | 7.8 | 7.8 | 0.0 |
| LSD | 7.2 | 6.4 | 5.5 | 6.3 | 6.6 | 6.5 | 6.5 | 6.1 | 5.4 | 4.7 | 4.4 | 4.5 | 5.2 | 4.8 | 4.9 | 5.4 | 5.2 | 5.6 | 6.8 | 6.9 | +0.1 |
| PCP | — | — | — | — | 7.0 | 4.4 | 3.2 | 2.2 | 2.6 | 2.3 | 2.9 | 2.4 | 1.3 | 1.2 | 2.4 | 1.2 | 1.4 | 1.4 | 1.4 | 1.6 | +0.2 |
| Cocaine | 5.6 | 6.0 | 7.2 | 9.0 | 12.0 | 12.3 | 12.4 | 11.5 | 11.4 | 11.6 | 13.1 | 12.7 | 10.3 | 7.9 | 6.5 | 5.3 | 3.5 | 3.1 | 3.3 | 3.6 | +0.3 |
| Crack | — | — | — | — | — | — | — | — | — | — | — | 4.1 | 3.9 | 3.1 | 3.1 | 1.9 | 1.5 | 1.5 | 1.5 | 1.9 | +0.4 |
| Other Cocaine | — | — | — | — | — | — | — | — | — | — | — | — | 9.8 | 7.4 | 5.2 | 4.6 | 3.2 | 2.6 | 2.9 | 3.0 | +0.1 |
| Heroin | 1.0 | 0.8 | 0.8 | 0.8 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.4 | 0.6 | 0.5 | 0.6 | +0.1 |
| Other Opiates | 5.7 | 5.7 | 6.4 | 6.0 | 6.2 | 6.3 | 5.9 | 5.3 | 5.1 | 5.2 | 5.9 | 5.2 | 5.3 | 4.6 | 4.4 | 4.5 | 3.5 | 3.3 | 3.6 | 3.8 | +0.2 |
| Stimulants | 16.2 | 15.8 | 16.3 | 17.1 | 18.3 | 20.8 | 26.0 | 20.3 | 17.9 | 17.7 | 15.8 | 13.4 | 12.2 | 10.9 | 10.8 | 9.1 | 8.2 | 7.1 | 8.4 | 9.4 | +1.0 |
| Crystal Meth. (Ice) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.3 | 1.4 | 1.3 | 1.7 | 1.8 | +0.1 |
| Sedatives | 11.7 | 10.7 | 10.8 | 9.9 | 9.9 | 10.3 | 10.5 | 9.1 | 7.9 | 6.6 | 5.8 | 5.2 | 4.1 | 3.7 | 3.7 | 3.6 | 3.6 | 2.9 | 3.4 | 4.2 | +0.8s |
| Barbiturates | 10.7 | 9.6 | 9.3 | 8.1 | 7.5 | 6.8 | 6.6 | 5.5 | 5.2 | 4.9 | 4.6 | 4.2 | 3.6 | 3.2 | 3.3 | 3.4 | 3.4 | 2.8 | 3.4 | 4.1 | +0.7s |
| Methaqualone | 5.1 | 4.7 | 5.2 | 4.9 | 5.9 | 7.2 | 7.6 | 6.8 | 5.4 | 3.8 | 2.8 | 2.1 | 1.5 | 1.3 | 1.3 | 0.7 | 0.5 | 0.6 | 0.2 | 0.8 | +0.6s |
| Tranquilizers | 10.6 | 10.3 | 10.8 | 9.9 | 9.6 | 8.7 | 8.0 | 7.0 | 6.9 | 6.1 | 6.1 | 5.8 | 5.5 | 4.8 | 3.8 | 3.5 | 3.6 | 2.8 | 3.5 | 3.7 | +0.2 |
| Alcohol | 84.8 | 85.7 | 87.0 | 87.7 | 88.1 | 87.9 | 87.0 | 86.8 | 87.3 | 86.0 | 85.6 | 84.5 | 85.7 | 85.3 | 82.7 | 80.6 | 77.7 | 76.8 | 76.0 | — | — |
| | | | | | | | | | | | | | | | | | | | 72.7 | 73.0 | +0.3 |
| Been Drunk | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 52.7 | 50.3 | 49.6 | 51.7 | +2.1 |
| Cigarettes | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Smokeless Tobacco | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Steroids | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.9 | 1.7 | 1.4 | 1.1 | 1.2 | 1.3 | +0.1 |

NOTES: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. '—' indicates data not available.

SOURCE: The Monitoring the Future Study, the University of Michigan.

occurs for an individual drug or the overall epidemic. Finally, as the last couple of years have illustrated, there can even be a relapse phase when use starts to rise again. There seems to be a cyclical nature to this, although it's not inevitable, and it is one that can be influenced. The remainder of this paper will deal with factors explaining changes in the levels of drug use within and across these phases.

**The Growth Phase**

In this theory of drug epidemics, I argue that there are five necessary conditions for an epidemic to grow. One condition is awareness: People have to know that a substance will have some psychological effect in order to use it for that purpose. Most young people who grew up in the 1950s and early 1960s did not know about marijuana, cocaine, and LSD: These drugs were not in their repertoire of known alternatives. Youngsters today are aware of a smorgasbord of drugs, reflecting an important change in the social environment. A second condition is accessibility: If people cannot get a drug, they cannot use it. Awareness may eventually drive access by creating a demand for the drug, in turn eliciting a supply system. A third condition is motivation to use drugs: Do the perceived positive payoffs outweigh the negatives for using. We have been dealing with this factor in the previous discussion of self-reported reasons for use, but I want to discuss it here from another perspective. The fourth condition, I propose is some reassurance about the safety of using a drug: Because people have a natural tendency to protect themselves, especially physically, and they recognize that taking a chemical into their body has the clear potential of being dangerous, they require some reassurance that the drug is safe. Finally, because virtually all of these drugs are illegal, people must also be willing to violate the predominant social norm and laws against using illegal drugs--the fifth condition. Each of these five conditions will be discussed separately.

***Awareness.*** In the late 1960s awareness of the psychoactive potential of many drugs, including marijuana, LSD, amphetamines, and speed, evolved. Over the intervening years, an awareness of many other drugs has developed; for example, some youngsters figured out that the over-the-counter drug, Robitussin™, would give them at a bit of a "buzz." It had been available for some time before anyone discovered its psychotherapeutic effects.

The media play an important role in spreading such awareness, though not usually an intentional one. They help raise awareness, and potentially stimulate motivation by explaining why people use the drug. Raised awareness can be semi-permanent change, because the knowledge gets passed on from cohort to cohort, generation to generation.

***Access.*** Access is another necessary condition for the expansion of a drug epidemic. Increased awareness may increase the access by simply causing people to seek a source for the drug. Certainly, too, increased use creates greater access, especially among young people, because for many of them the "dealers" are simply friends from whom they buy their drugs. If a fair number of young people use drugs, then a great many of them have some friend who uses and who potentially provides them access. Thus, access radiates through friendship networks.

## Table 2
## MOTIVATIONS FOR USING DRUGS

- ACHIEVEMENT OF PLEASANT MOOD STATES
  - (HIGH, MELLOW, FUNNY, HAPPY, POWERFUL, AT ONE WITH THE UNIVERSE, ETC.)
- AVOIDANCE OF UNPLEASANT MOOD STATES
  - (DEPRESSION, ANXIETY, ANGER, BOREDOM)

- ACCEPTANCE IN A PEER GROUP

- CELEBRATION AND COMMUNAL EXPERIENCE

- SYMBOLIC EXPRESSION
  - DEFIANCE OF PARENTS, OTHER AUTHORITIES (AGE-GRADED NORMS)
  - ALIENATION FROM "THE SYSTEM" OR THE CULTURE
  - SOLIDARITY WITH A PEER GROUP
  - SOLIDARITY WITH A SOCIAL MOVEMENT
  - BEING "LIKE" AN ADMIRED ROLE MODEL
- PERFORMANCE ENHANCEMENT
  - SEXUAL PERFORMANCE AND ENJOYMENT (MARIJUANA, COCAINE, QUAALUDES)
  - ENHANCED WORK CAPACITY (COCAINE, AMPHETAMINES)
  - STAYING AWAKE AND ALERT (COCAINE, AMPHETAMINES)

- PERSONAL INSIGHT AND CREATIVITY (LSD, MDMA)

If the demand is there, the supply will emerge and be maintained. Indeed, I have arguedthat no matter how many countries stop growing illicit drugs, how many border seizures of illegal drugs are made, or how many drug dealers are arrested on the street, an endless number of suppliers will emerge to fulfill demand in order to reap the enormous profits to be made. That, I think, is the Achilles heel to the supply-side reduction approach. It is simple economics: If there is large-scale demand with high profits, the elements in the supply system continue to emerge. We can fill the prisons, build more, fill them, and so on, as we have been doing. Supply and suppliers will keep emerging. We will not solve this country's drug problem as long as we think about it only, or even primarily, as a supply-side problem. That does not mean we can let criminal networks flourish and flout the law, clearly we cannot. However, for the last decade law enforcement officials have said that all that they can do is a holding action. Demand must be reduced to resolve the drug problem.

The development of a supply network is a semi-permanent change: It is not easy to close down a supply and distribution system quickly once established. Once a distribution system is in place, it can readily add drugs. Again, the fastest and surest way to control drug use in the population is to close down demand.

***Motivation to use***. Motivation to use is posited as the third necessary condition for an epidemic to emerge. Table 2 presents a broad range of motivations, including ones that go beyond those respondents can, or will, report. Thus, this list goes well beyond the self-reported reasons discussed above.

Achieving pleasant or euphoric mood states (being high, mellow, funny, happy, powerful, one with the universe) clearly constitutes part of the perceived benefits of use. And, as discussed earlier, these differ from drug to drug. Avoiding dysphoria or unpleasant mood states is another important motivation and, for drugs that have this effect, it is an important part of their reinforcement value. In my opinion, the more psychologically needy are more susceptible to serious drug involvement precisely because they get more such reinforcement. If a drug removes some kind of pain, that provides more reinforcement than if the person were not experiencing as much pain in the first place. Of course, as a person's involvement with a drug increases, the drug itself may create the additional physical pain of withdrawal, becoming an additional powerful motivator for continued use.

Seeking to fit in with a peer group can be another important reason to use. I think it is often a subtle--almost a self-imposed--kind of peer pressure, rather than outright taunting or daring. Celebration and communal bonding with the group also can be important for some drugs, particularly for alcohol and marijuana. Symbolic expression can provide a strong motivation to use. For every generation the defiance of parents can be a motivation. Drug use can also prove symbolic as a part of social movements. During the Vietnam era the use of both marijuana and LSD carried not only the symbolism of communal bonding with the counterculture, but also active rejection of adult society's values. At the present time there is no social movement that has adopted certain drugs as part of its ritual and symbolism, but that could happen again. If it does, it could prove to be a powerful catalyst for use.

**Figure 6**

**CRACK: REASONS FOR ABSTENTION AND QUITTING**

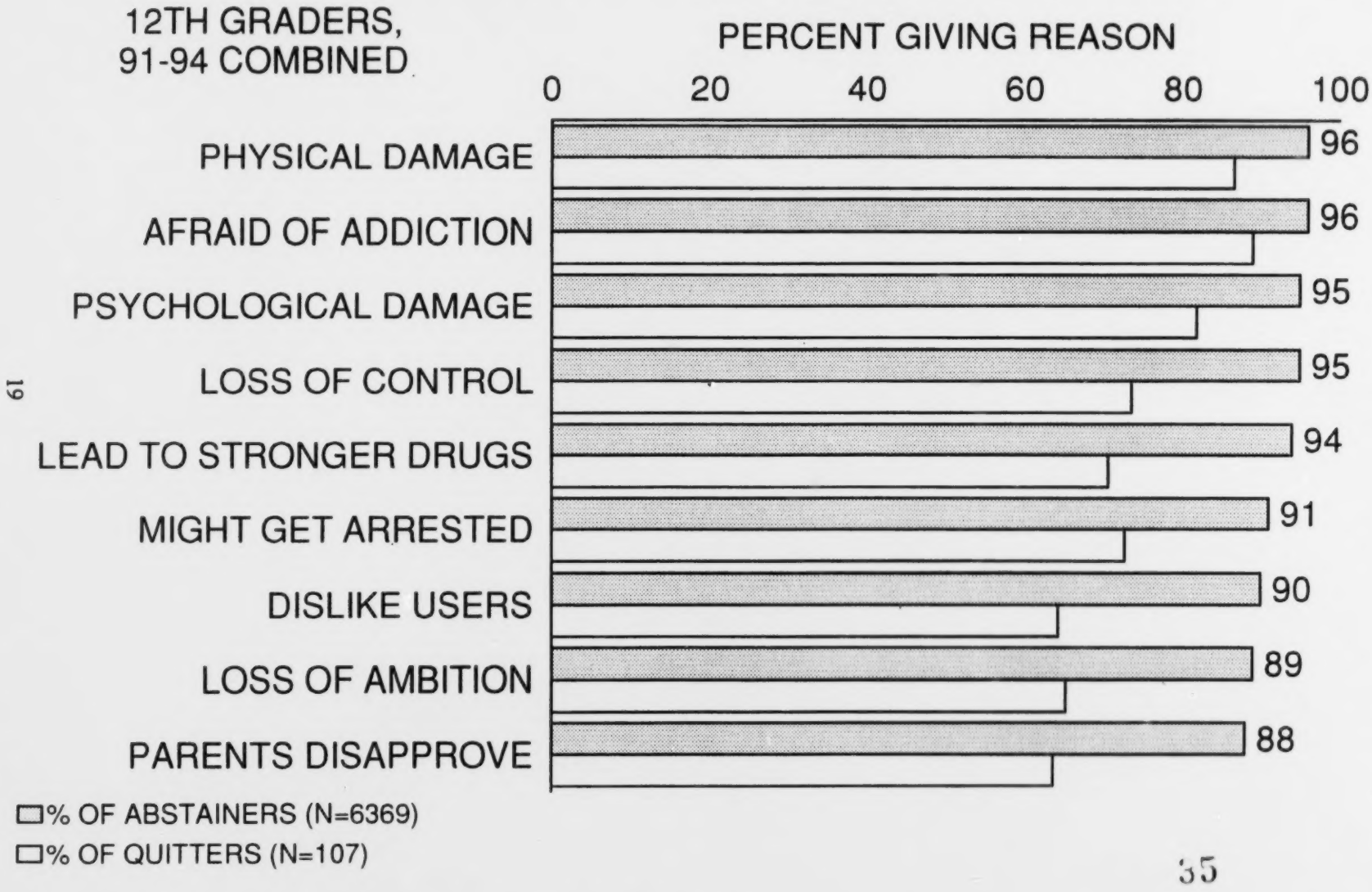
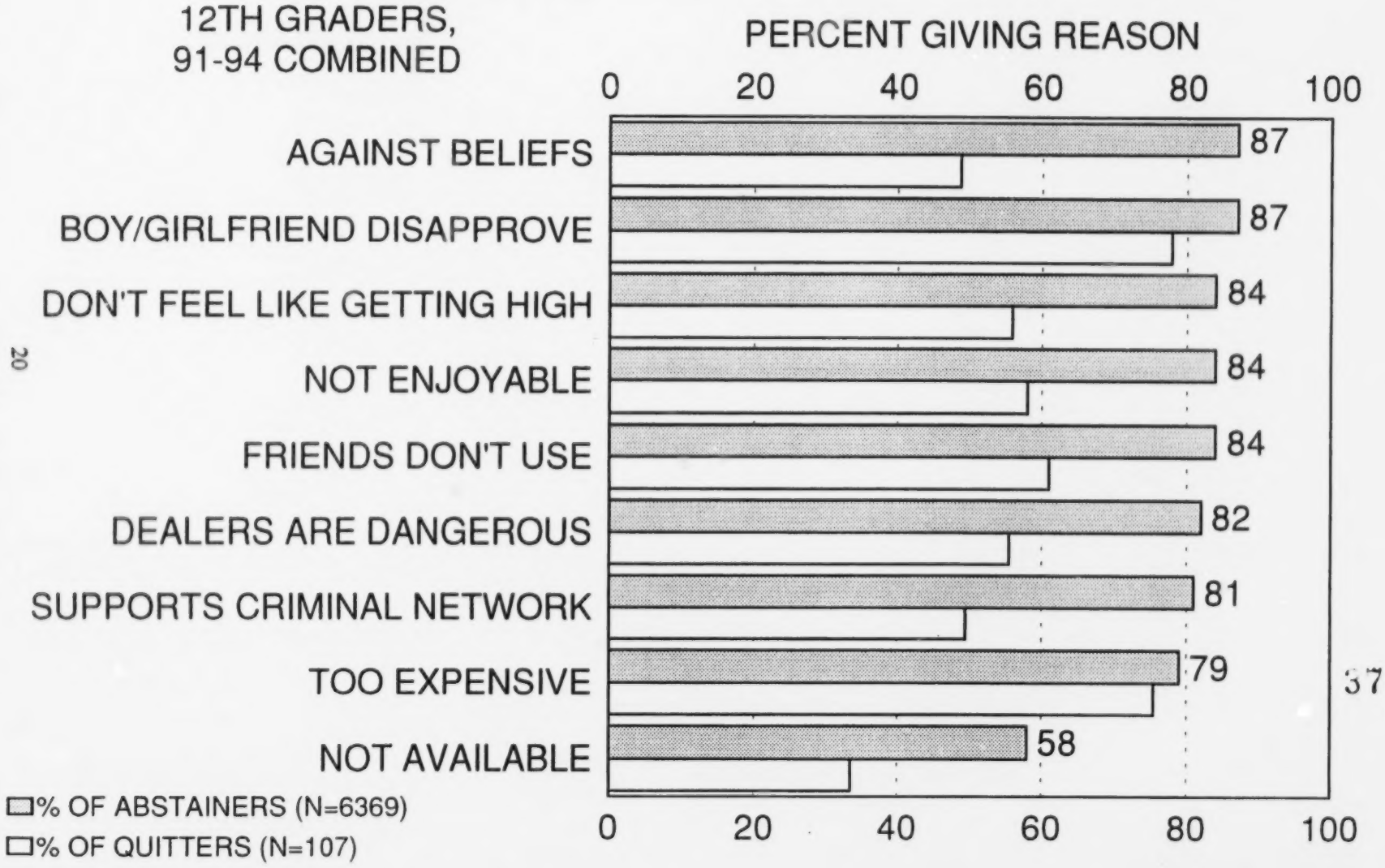


**Figure 6 (Cont'd)**

## CRACK: REASONS FOR ABSTENTION AND QUITTING



Modeling and imitating admired role models can be another reason for use. Members of the entertainment industry (e.g., musicians, performers, athletes) have an important influence on youngsters who want to be like them. Historically, the drug-using behavior of the people in these role model statuses has fluctuated widely, and at the present time, I believe youngsters are getting a mixed message from some of these role models, rather than the more unified message they got in the late 1980s. Some of our data (yet to be released) certainly suggest that.

Performance-enhancement can be another promised benefit of a drug. Sexual performance and/or enjoyment were among the alleged benefits for marijuana, cocaine, and certainly for Quaaludes and the nitrite inhalants. The promise of increased work capacity through endurance, or the ability to stay awake and alert, has helped sell stimulants like cocaine and amphetamines. LSD promised personal insight and creativity, and similarly, MDMA (ecstasy) was alleged to give people more insight into themselves.

In sum, a great many different types of motivations can play a role in spreading the use of a drug--more than are covered in the self-reported use questions discussed earlier. Motivations can differ with drug and historical period and at times by subgroup in the population.

***Reassurance about the safety of a drug***. Where do people derive reassurance about the safety of a drug--one of the necessary conditions for an epidemic of use. Partly from acquaintances and friends who are using the drug without obvious adverse consequences. Experts also can play a role, and have. Timothy Leary, for example, was a psychology professor at Harvard University, which gave him credibility as an expert on whether LSD could be dangerous to the user. At one time psychiatrists were singing the praises of MDMA. A number of academics served as expert "reassurers" on the safety of cocaine early in the cocaine epidemic, and so on.

Of course, the real evidence about the adverse consequences of a drug may take a long time to develop, so the self-proclaimed experts can reign for some time even if they are wrong. They help provide the initial, necessary reassurance.

***Willingness to violate laws and predominant social norms***. During the 1960s and 1970s a whole generation of young people expressed a willingness to violate laws and social norms regarding drugs. It was a political and ideological act to do so, associated with the Vietnam war, alienation from government, Watergate, and so on. Fortunately, we seldom have such huge generational differences in ideology, but certainly there were in this epidemic (e.g., Johnston, 1973).

The legality of a given substance helps to establish norms about its use, which is why I am very much against legalization. It sends a misleading message about what the norms are and how dangerous the society-at-large thinks a drug is, whether or not there has been traditional use. We have a tendency to disapprove drugs that we see as dangerous. For example, as the long-term health risks of cancer, heart disease, etc., have been clearly linked to tobacco use, norms about such use have changed dramatically.

**The Maintenance Phase**

The counterculture social movement receded in the 1970s because the Vietnam war was over. An important catalyst that helped give rise to the drug-use epidemic, was gone; but the epidemic continued. Why? I have already mentioned several factors which have been semi-permanently changed: awareness of a smorgasbord of alternatives that earlier generations did not know about, and accessibility through an elaborated supply system. In addition, there was inter-cohort role modeling. I use the word "cohort" rather than "generational" because older siblings model and perhaps teach their younger siblings these behaviors. Each new cohort is aware of what the slightly older cohort has been doing. Youngsters in middle or junior high school want to be like the older kids.

There is also the potential for inter-generational role modeling, because we now have a generation of parents who are very drug experienced themselves. Personally, I do not think this is a very important force, because I think parents are much more conservative about drugs now than they were as adolescents. However, that older generation may have conflicting feelings about how to communicate with their own children about drugs, because they are worried about being hypocritical, given their own past experiences with them. Instead of taking the risk of being hypocritical, they are silent--and that may be an important generational change.

There are still other factors which help maintain an epidemic. Institutional support mechanisms like NORML and High Times, for example, have evolved. There are other publications and organizations which tend to be pro-drug, as well. NORML has a recruiting table at many rock concerts, hoping to recruit the next generation of kids to be "pro-pot."

Finally, new drugs are constantly being introduced, helping to stimulate new interest. If the use of the more established drugs recedes because people become aware of their dangers, there always will be new ones with new promises, new proponents, and new reassurances. Ecstasy is a recent example. Ice another, although it did not catch on, largely I think, because it emerged when crack was developing a very bad name as a dangerous drug, and ice was closely associated with crack.

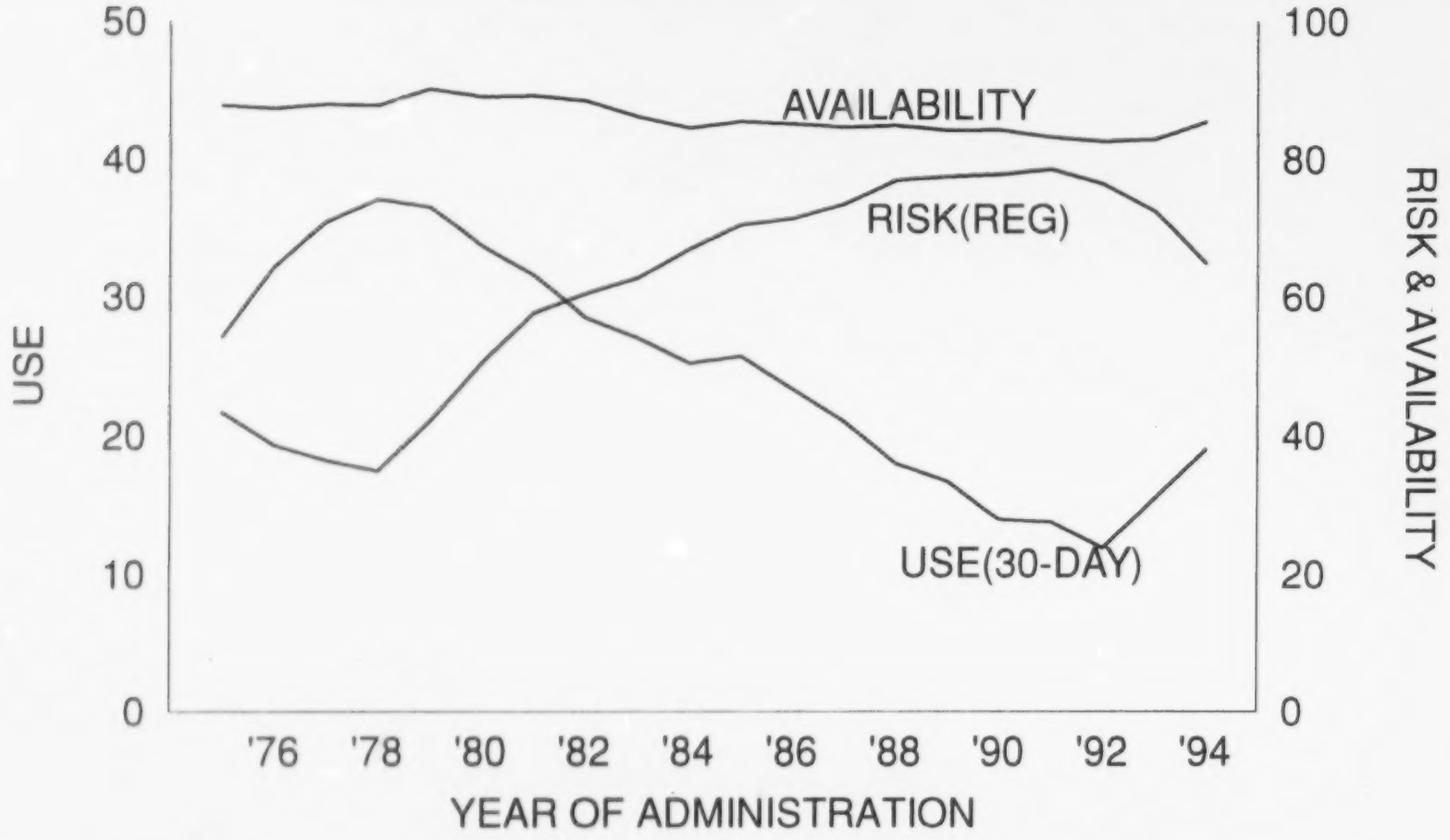
**The Decline Phase**

For more than a decade, beginning in the late 1970s, the American drug epidemic was in a decline phase. During this phase fewer people initiated use and more users quit. The quitting rate went up, especially for marijuana and later for cocaine (Johnston et al., 1995). However, there is less evidence of a decline among addicted heroin and cocaine users. Such behavior is harder to change by altering attitudes, beliefs, and norms, precisely because the users are addicted. The criminal justice system provides a convenient catchment system for reaching and intervening with many addicted users, and since treatment is the only policy-controlled way we are likely to get them to stop using, we should be treating these addicted users in prison.

**Figure 7**

**MARIJUANA: TRENDS IN PERCEIVED AVAILABILITY, PERCEIVED RISK OF REGULAR USE, AND PREVALENCE OF USE IN PAST THIRTY DAYS**

TWELFTH GRADERS



Our observation of the decline phase of the broad epidemic of illicit drug use strongly suggests that perceived risk and peer norms have been critical to the downturn in drug use. This has particularly been true for two key drugs--marijuana and cocaine (Bachman, Johnston, & O'Malley, 1990; Bachman, Johnston, O'Malley, & Humphrey, 1988). While we have less empirical evidence, I believe it also has been true for drugs like PCP, ice, and LSD. Figures 7 and 8 show the long term trends in seniors' use of marijuana and cocaine. They also show the trends in two possible explanatory factors–perceived risk and perceived availability. Figure 7 shows that the perceived availability of marijuana has remained almost constant over a 20-year period, and therefore has little capacity to explain the large decline which began after 1979. Perceived risk, on the other hand, rose dramatically over the very period that use fell. Disapproval of use (figure not included) also increased substantially over the same period. This, plus other substantive evidence, has convinced us that this decline was due to a change in demand, resulting from the upswings in perceived risk and disapproval.

Figure 8 tells a similar story for cocaine. In fact, during the first few years of the downturn in cocaine use, perceived availability actually continued to rise. Perceived risk, on the other hand, moved sharply upward after 1986, and the reasons for quitting and abstention, discussed earlier, show it is still a major deterrent to use. Other factors, such as levels of religiosity, or conservatism, or delinquency have not shown significant power to explain the declines in the use of these two drugs (Bachman et al., 1990; 1988).

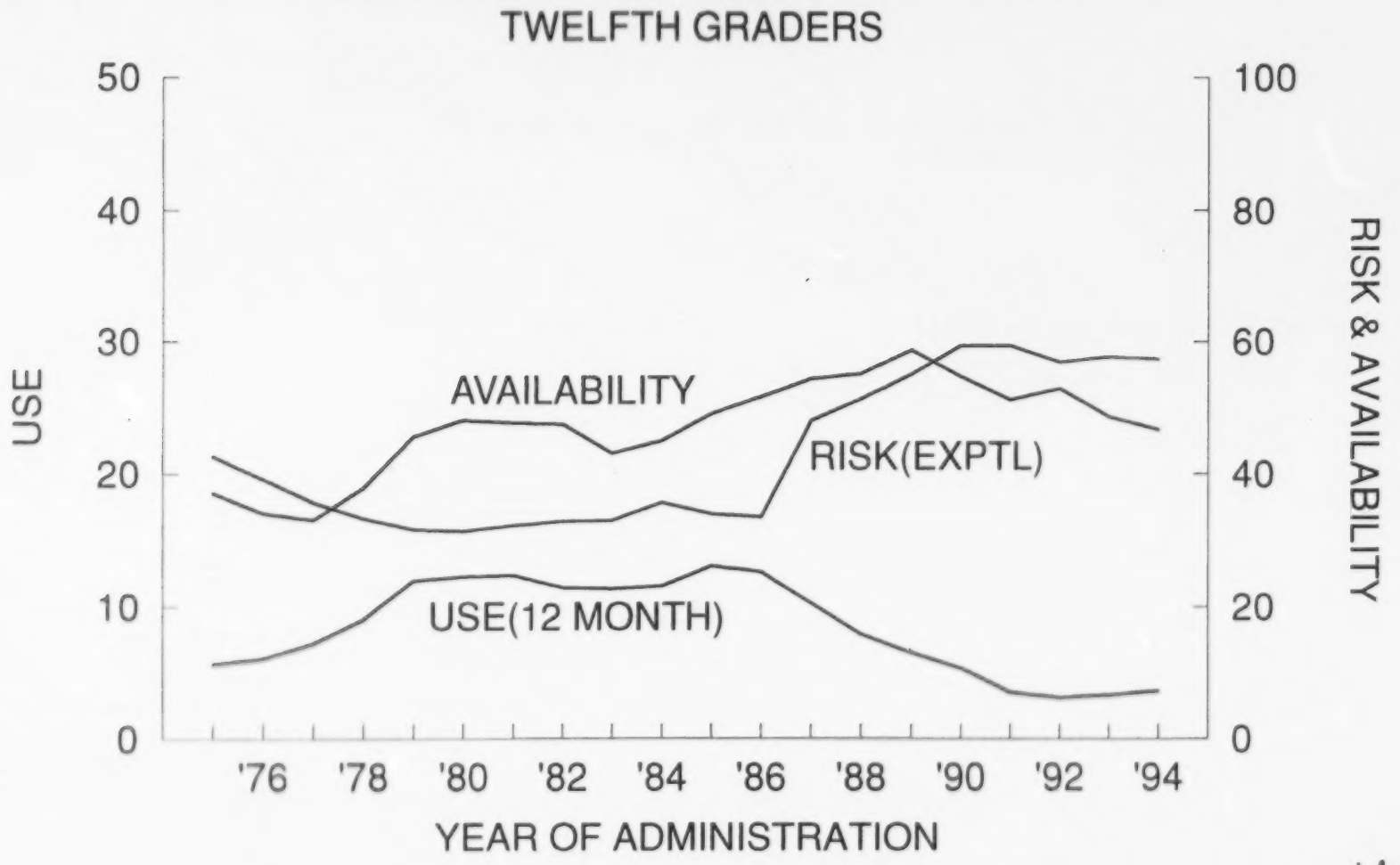
**The Relapse Phase**

Of course, the capacity to start the cycle over again always exists, and beginning in 1991 we have seen evidence of that (see Figure 7). Marijuana use in particular, and illicit drug use in general, have begun to rise again among American adolescents. Again, we have seen a change in perceived risk, this time preceding the turnaround in use by a year, and in peer disapproval of use, which we believe helps explain this relapse. We have added a new concept to our theory of epidemics-- "generational forgetting"--to help explain the relapse (Johnston, Bachman, & O'Malley, 1994). By that, we mean that adolescents' knowledge about the adverse consequences of drugs begins to erode as a result of generational replacement. Newer cohorts of youngsters have less drug use in their immediate environment, or portrayed in the mass media, from which to learn vicariously about the adverse consequences of use. They also may be getting less information through the news (which has had a dramatic drop in coverage of the drug issue) or through the anti-drug advertising campaign (which also has suffered a fall-off in coverage). If another generation of young Americans are to be spared having their own drug epidemic, from which they will have to learn the hard way, society-at-large needs to do a better job of conveying the hazards of drug use to this more naive generation.

Even if we fail to do that, I am not predicting an epidemic of the scale of the last one, because for the moment we lack an historical event of the consequence of the Vietnam War. However, legalization of some or all of the drugs would be a different kind of historical event which could have dramatic repercussions. Because it is likely that legalization would reduce considerably both perceived risk and disapproval, I would expect it to greatly increase the proportion of young Americans likely to use currently illicit drugs. Within the framework of our theory of drug epidemics, legalization would be predicted to have disastrous consequences.

**Figure 8**

**COCAINE: TRENDS IN PERCEIVED AVAILABILITY, PERCEIVED RISK OF TRYING, AND PREVALENCE OF USE IN PAST YEAR**



## SUMMARY AND CONCLUSIONS

In sum, whether people use drugs can differ as a function of the particular drug and the degree of involvement with that particular drug. The perceived dangers of using a drug have proven to be very important explanators of individual use and of use in the aggregate. So has the normative environment of the peer group, which we have argued is influenced in part by the perceived dangers of using a drug. Such norms also can be influenced by social movements in which drug use plays a symbolic role, the most obvious example being the counterculture movement during the Vietnam era.

Further, the process of generational replacement means that controlling levels of drug use in the population must be a dynamic process, regardless of what the last generation may have learned about the dangers associated with drug use, the replacement generation must learn it anew. Because youngsters will be aware of an array of drugs for the foreseeable future *and* have ready access to them, they must have reasons to abstain. Otherwise curiosity alone will motivate many to try and eventually to become more involved with drugs.

We are now in a relapse phase of an epidemic of illicit drug use, and still have the residual population of cocaine and heroin addicts from the original epidemic. Society's ability to control the relapse and to reduce the standing addict population will depend greatly on our understanding of the dynamic nature of the process, of the limitations of traditional supply reduction strategies, and on the importance of demand and demand reduction to the dynamics of such epidemics. Beliefs, attitudes, and norms regarding drugs are critical deterrents to use in the general population. For addicts more substantial changes are clearly needed to change behavior, primarily in the form of effective treatment and rehabilitation.

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